HORSTMANN

The Horstmann ThermoPlus AS2-RF - Programmable Room Thermostat with wireless communication technology.

INTRODUCTION

The Horstmann ThermoPlus AS2-RF is a wireless room thermostat that has been designed to make its operation very simple for the householder.

The built in automatic clock means it will not need setting or adjusting for BST and GMT time changes.

The ThermoPlus will provide a Warm temperature setting at times pre-set by your installer and day-to-day user adjustments are carried out using just three buttons.

The ThermoPlus AS2-RF is supplied in two parts. The receiver which is hard wired to the combi or conventional system boiler and the AS2-RF thermostat which can be used in any normal domestic environment within a typical 30 metre range without the need for any costly or disruptive wiring.

THERMOPLUS AS2-RF - PRODUCT OVERVIEW

The AS2-RF thermostat kit is made up of two parts:
1 x ASR-RF Receiver
1 x AS2-RF Transmitter
Both parts have been designed to be easily installed and offer maximum flexibility. No hard wiring is required between the transmitter and the receiver. The receiver unit is hard wired to the boiler and should be sited close to the existing wiring. The AS2-RF can then be positioned up to 30 metres away - *Range will vary depending upon the composition, density and number of walls between the AS2-RF transmitter and the receiver.*
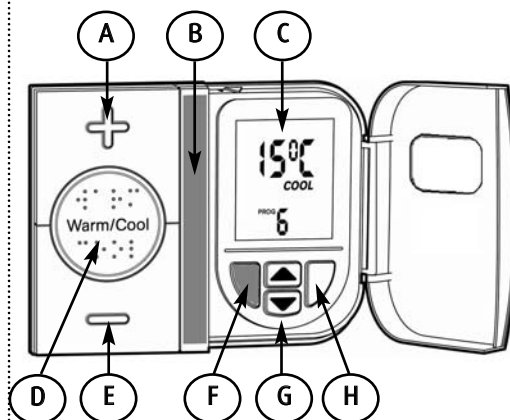
ASR-RF RECEIVER
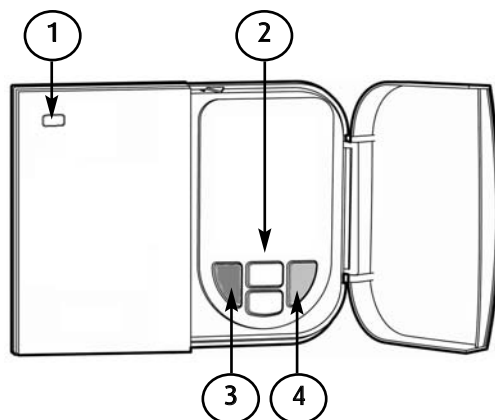
ThermoPlus ASR-RF Receiver

AS2-RF TRANSMITTER

ThermoPlus AS2-RF Transmitter

LED INDICATOR - The tri-colour LED gives the status indication to the user and installer.

EASY TO USE PAIRING AND OVERRIDE BUTTONS - Simple to identify colour coded buttons allow you to connect the transmitter and receiver. They also allow override of the boiler without the transmitter. (see section 3)

1 - Status Indicator LED
2 - AS2-RF Add/Remove Buttons
3 - Boiler 'Off' Override** (Red)
4 - Boiler 'On' Override** (Green)

**The override facility will only operate when a flashing amber LED is showing. This indicates no signal from the AS2-RF transmitter is being received, the position and battery level should be checked.

LCD DISPLAY FEATURES - A fully graphical back-lit installer and user display.

LED INDICATOR - Red and Blue indicators show if you are in a 'Warm' or 'Cool' period.

PRESET PROGRAMMES - Programming is made simple and a one touch override facility makes temporary changes simple to use.

AUTOMATIC CLOCK - A factory set clock which automatically adjusts between winter (GMT) and summer (BST) time.

A - Plus '+' Button
B - LED Indicator lights
C - Installer Display
D - 'Warm/Cool' Button
E - Minus '-' Button
F - Standby / Time / Set Button
G - Increase / Decrease Buttons
H - Prog / Exit Button

What is a room thermostat?
... an explanation for householders
A room thermostat simply switches the heating system on and off as necessary. It works by sensing the air temperature, switching on the heating when the air temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.
Turning a room thermostat to a higher setting will not make the room heat up any faster. How quickly the room heats up depends on the design of the heating system, for example, the size of boiler and radiators.
Neither does the setting affect how quickly the room cools down. Turning a room thermostat to a lower setting will result in the room being controlled at a lower temperature, and saves energy.
The heating system will not work if a time switch or programmer has switched it off.
The way to set and use your room thermostat is to find the lowest temperature setting that you are comfortable with, and then leave it alone to do its job. The best way to do this is to set the room thermostat to a low temperature - say 18°C - and then turn it up by one degree each day until you are comfortable with the temperature. You won't have to adjust the thermostat further. Any adjustment above this setting will waste energy and cost you more money.
If your heating system is a boiler with radiators, there will usually be only one room thermostat to control the whole house. But you can have different temperatures in individual rooms by installing thermostatic radiator valves (TRVs) on individual radiators. If you don't have TRVs, you should choose a temperature that is reasonable for the whole house. If you do have TRVs, you can choose a slightly higher setting to make sure that even the coldest room is comfortable, then prevent any overheating in other rooms by adjusting the TRVs.
Room thermostats need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture. Nearby electric fires, televisions, wall or table lamps may prevent the thermostat from working properly.

The above explanation has been kindly provided by the association of heating controls manufacturers as a guide to encouraging the correct and efficient use of heating controls.

For more information on Z Wave technology please visit;

www.zen-sys.com

SECTION 1 - UNDERSTANDING THE AS2-RF

INDICATING LIGHTS AND BACK-LIT DISPLAY

The ThermoPlus AS2-RF is battery powered and is intended for applications where no mains supply is readily available to operate the unit. To conserve battery life, the indicator lights and the display backlighting will go out after 8 seconds. The LCD target temperature display will remain on, but not back-lit, at all times.

The LED indicators will illuminate whenever the '+/-' or 'Warm/Cool' buttons are pressed. The back-lit display will also operate whenever any of the buttons located under the flap are pressed. '

The LED indicators will convey the heating status by adjusting the number and colour of the LED's displayed;
 - 'Warm' is shown by two red lights - Adjustment to this temperature of $1^{\circ}C$ can be made by pressing the '+' button, to a maximum increase of $2^{\circ}C$, and the '-' button to a maximum decrease of $2^{\circ}C$
 - 'Cool' is shown by a single blue light - The '+' and '-' buttons have no effect on the lower temperature setting

PLEASE NOTE; The centre button marked 'Warm/Cool' allows you to toggle between the Warm and Cool settings.

STANDBY / FROST PROTECTION

The blue button situated under the flap will initiate the frost protection mode when pressed, the word 'STANDBY' will appear on the display, the thermostat has been pre-programmed with a frost protection temperature level of $7^{\circ}C$, this can be adjusted by using the up and down arrow buttons. To resume normal operation press the blue button to cancel the frost protection.
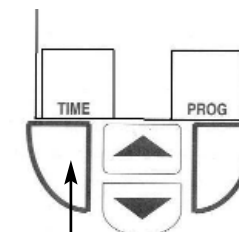
PRESS FOR STANDBY / FROST PROTECTION

POWER DOWN MODE

During normal operation the AS2-RF will go into Power Down Mode, this is to maximise the life of the 3 x AA batteries fitted. Normal operation will continue during this mode, and the heating will be unaffected. The result of the Power Down Mode will mean that the LED indicators will not be displayed and LCD will not be illuminated, although the 'Warm' or 'Cool' temperature will be displayed.
To 'wake up' the AS2-RF press the 'Warm/Cool' button for 5 seconds, this will then illuminate both the LED and LCD displays for a period. Any adjustment can then be made, the Power Down Mode will commence again approximately 8 seconds after the last button press.

SECTION 2 - SETTINGS AND ADJUSTMENT

WARM AND COOL TEMPERATURE ADJUSTMENT(PERMANENT)

The ThermoPlus has two preset temperature levels, these are known as;
 - 'Warm', higher level temperature(21℃)
 - 'Cool', lower or set back temperature (15℃).
The preset temperatures have been selected to give a comfortable, safe, yet efficient temperature level in the home.
In certain installations it may be necessary to adjust either the 'Warm' or 'Cool' temperatures to meet the specific needs of the user. This can be achieved by following the simple steps below;
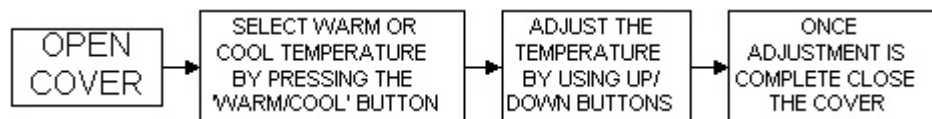
To change a target temperature it is first necessary to press the the centre button to bring up the 'Warm' or 'Cool' setting (Indicated by the red or blue LED indicators).
Use the up/down keys under the flap to increase or decrease to the desired temperature setting
PLEASE NOTE - it is not possible to set the 'Warm' setting to below that of the 'Cool' setting or vice versa.
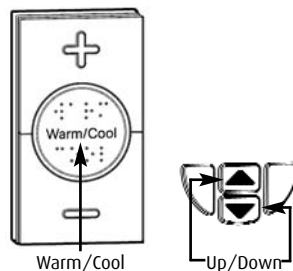
Once a new temperature has been set in either the Warm or Cool setting the AS2-RF will continue to use this setting until the next manual adjustment.

Warm/Cool   Up/Down

WARM TEMPERATURE ADJUSTMENT(TEMPORARY)

The temperature settings on the AS2-RF will have been set by the installer to match your lifestyle, however if any temporary increase or decrease to the 'Warm' setting is required you can press the '+' or '-' buttons. The temperature change will be indicated by both the LED and LCD user displays
PLEASE NOTE;
 - This is a temporary change and will revert back to the normal setting at the next programmed 'Warm/Cool' change.
 - This does not indicate a permanent change in the 'Warm' settings.
 - During an override the word 'Warm' will disappear from the LCD display indicating an override is active.
 - The '+' and '-' buttons have no effect on the 'Cool' setting
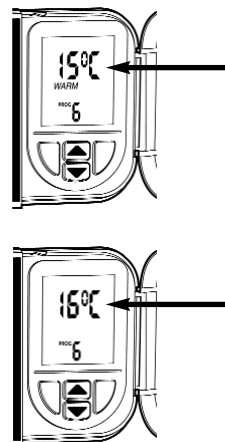
SERVICE AND REPAIR

The ThermoPlus AS2-RF is NOT user serviceable. Please do not dismantle the unit. In the event of a fault developing please refer to the RESETTING THE THERMOSTAT section of this user guide. If this fails to resolve the problem please contact a local heating engineer or a qualified electrician.

NOTES

SECTION 4 - GENERAL INFORMATION

RESETTING THE AS2-RF TRANSMITTER

Electronic equipment can in some circumstances be affected by electrical interference. If the display becomes frozen or scrambled; or if you wish to revert back to the default settings please use the following procedure.

PLEASE NOTE; Using this procedure will restore the AS2-RF to the original factory settings, the time of day will also revert to 1/1/06, details of how to adjust the time are contained within the user guide.

RESETTING THE THERMOPLUS AS2-RF

 - On the ThermoPlus AS2-RF press the 'UP' and 'DOWN' arrow buttons together:
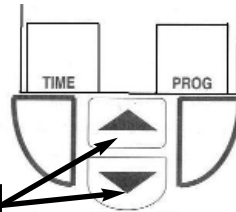 - Then release the buttons and the thermostat will return to preset factory settings.

TIME   PROG

TO RESET PRESS

BATTERY REPLACEMENT

The ThermoPlus AS2-RF uses 3 x AA(LR6) batteries. The batteries supplied with the unit should last for approximately two years. When the batteries are nearing the end of their life a 'LOW BAt' message will flash on the display.

To change the batteries it is necessary to remove the AS2-RF from the wall, to achieve this first press the RELEASE BUTTONS located under the unit and pull the AS2-RF away from the mounting plate by gently pulling up.

Remove the old batteries and replace them with three new AA size alkaline batteries, ensure they are fitted correctly as shown by the marking positioned between the battery terminals. Once batteries have been fitted, replace the AS2-RF to the mounting plate, ensuring that the two guide lugs are fitted into the corresponding slots in the top of the mounting plate. Now push the AS2-RF until the release button clicks into place.

WARNING : You must always ensure that the AS2-RF is always running on 3 x AA batteries, when the battery low message is indicated it is impotant that they are exchanged as soon as possible. This is to preserve the secondary internal reserve battery which is non-replaceble.

OPERATING MODES

During normal operation the receiver will indicate the boiler status through the colour of its LED, please refer to the receiver STATS INDICATOR LED section of this guide.

The AS2-RF also uses a combination of LED and LCD displays to assist the user to gain maximum benefit from the thermostat, during normal operating periods, where no user intervention has occurred, the AS2-RF will power down to maximise battery life, to 'wake' the AS2-RF press the Warm/Cool for 5 seconds, the displays, both LED and LCD, will now illuminate and will stay lit for a period of 8 seconds after the last button press.

AS2-RF PROGRAMMING MODE

The ThermoPlus AS2-RF has been designed to operate with as little as possible adjustment by the user.

However, should any programming adjustments be required then lift the flap and press the two outer buttons simultaneously. This will allow you to enter the programming mode to check and adjust any of the following

;
 - **Check the current time/date/year**
 - **Check the current profile**
 - **Set a new pre-set or user defined profile**
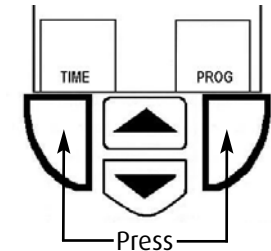
PLEASE NOTE; Upon completion of any changes/reviews made, please ensure that you exit the programming mode using the same two buttons.

TIME   PROG

Press

AS2-RF TIME ALTERATION

The ThermoPlus thermostat has been pre-set with the current time and date during manufacture. No alteration should be required to the time and date, however if any modification is required please refer to the flowchart below.

OPEN COVER → ENTER PROGRAMMING MODE (DETAILS GIVEN ABOVE) → PRESS TIME → PRESS SET → MINUTE FLASHES, ADJUST USING UP/DOWN BUTTONS → PRESS SET → HOUR FLASHES, ADJUST USING UP/DOWN BUTTONS → PRESS SET → DATE FLASHES, ADJUST USING UP/DOWN BUTTONS → PRESS SET → MONTH FLASHES, ADJUST USING UP/DOWN BUTTONS → PRESS SET → YEAR FLASHES, ADJUST USING UP/DOWN BUTTONS → PRESS SET → PRESS EXIT → EXIT PROGRAMMING MODE (DETAILS GIVEN ABOVE)

SETTING HEATING PROFILES

The ThermoPlus contains a selection of five pre-set and one user definable profile options, one of these may have been set by the Installer. Care should be taken to ensure a profile is selected that suits the lifestyle of the user concerned.
The flow chart below is designed to easily guide you through the process of setting the required profile.

Profiles one to five are detailed on pages 7 and 8.

If none of the pre-set profiles meet your requirements it is possible to set a user defined profile, full details are given on page 9.

```
┌──────────────┐
│    OPEN      │
│   COVER      │
└──────────────┘
        │
        ▼
┌──────────────────────┐
│ ENTER PROGRAMMING    │
│       MODE           │
│ (DETAILS ON PAGE 5)  │
└──────────────────────┘
        │
        ▼
┌──────────────┐
│  PRESS PROG  │
└──────────────┘
        │
        ▼
┌──────────────┐
│  PRESS SET   │
└──────────────┘
        │
        ▼
┌──────────────────────┐
│ SELECT THE REQUIRED  │
│ PROFILE BY USING THE │
│ UP/ DOWN BUTTONS     │
└──────────────────────┘
        │
        ▼
┌──────────────┐
│  PRESS SET   │
└──────────────┘
        │
        ▼
┌──────────────┐
│  PRESS EXIT  │
└──────────────┘
        │
        ▼
┌──────────────────────┐
│ EXIT PROGRAMMING MODE│
│ (DETAILED ON PAGE 5) │
└──────────────────────┘
```

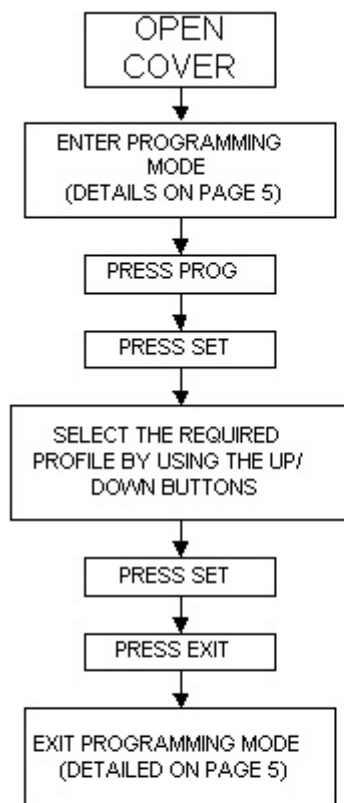> Profiles one to five have fixed programmes, they can be reviewed by pressing the set button once the selection process detailed above has been completed. To set a custom profile please refer to the instructions on page 9.

COMMUNICATION FAIL SAFE MODES

RECEIVER FAIL SAFE MODE

Should your receiver enter the Fail Safe Mode this will be conveyed by the LED indicator going solid amber. This will only happen if the receiver has not received a signal from the AS2-RF for more than 60 minutes. Some basic instructions are detailed in the section above and on the inside of the receiver flap for the emergency use of the relay/heating during this mode.
To resume normal operation please use the following procedures;

1. Press the 'warm/cool' button on the front of the AS2-RF for 5 seconds, or until the display illuminates, then press again to send a signal to the receiver receiver, if successful this will be indicated by the LED on the receiver changing from amber to either red or green.

or

2. Check and replace, if necessary, the 3 x AA batteries in the AS2-RF transmitter, then follow process (1) above.

3. If process (1) and (2) fail to regain normal operation then please consult your heating or service engineer for further assistance.

AS2-RF NO SIGNAL INDICATOR

Should your AS2-RF enter the Fail Safe Mode this will be conveyed by the LCD display showing 'No Sig' every 3 seconds. This indicates that the AS2-RF has not received a signal to confirm the last 'Warm/Cool' change from the receiver.
To resume normal operation please use the following procedures;

1. Press the 'Warm/Cool' button on the front of the AS2-RF for 5 second, or until the display illuminates, then press again to send a signal to the receiver receiver, if successful this will make the 'No sig' flag disappear

or

2. Check the receiver receiver, if the LED is **not** illuminated this indicates a power interruption or disconnection. Check the 3A fused spur supply, if the LED then illuminates on the receiver then press any button on the AS2-RF to reconnect.
if checking the 3A spur supply fails to illuminate the LED then the assistance of an electrician or service engineer should be sought.

SECTION 3 - UNDERSTANDING THE RECEIVER

RF TECHNOLOGY

The AS2-RF thermostat uses radio frequency technology to communicate wirelessly between the receiver and transmitter. This makes the AS2-RF ideal for fitting in either new or existing systems where additonal wiring cannot be used for either practical or cosmetic reasons. The receiver and AS2-RF use Z-wave technology to communicate, this means it can be used as a stand alone item or added to an existing Z-wave installation.

RECEIVER STATUS INDICATOR (LED) LIGHT

The Tri-coloured LED on the receiver allows both the installer and the end user to understand the status of communication between the receiver and the AS2-RF.
The LED has six different indications, these are;

INSTALLATION MODE;   PLEASE NOTE; These will not be visible during normal user operation, users should not attempt to re-commission an existing installation, please consult your service engineer for assistance.

Flashing Red - No network connection, please refer to 'COMMISSIONING INSTRUCTIONS' section of the installation guide.
Flashing Green - Indicates a successful network connection.

NORMAL OPERATION;   The following LED indications should be present during normal operation;

Solid Red - Heating off
Solid Green - Heating on

FAIL SAFE MODE   If, during normal operation, the RF signal is lost for more than 60 minutes then the receiver will switch to Fail Safe Mode(off). During Fail Safe Mode the receiver relay/heating will be switched off and can be controlled by using the emergency red(off) and green(on) buttons located below the flap on the receiver if required, further details are given in the following sections. When the emergency buttons are used the LED will operate in the following way;

Solid Amber - Heating off - indicating no message from AS2-RF for 60 minutes -
Flashing Amber - Heating on - Green override button activated

PLEASE NOTE; The red and green override buttons on the receiver will only operate in fail safe mode. In normal operation pressing these buttons will have no effect.

HEATING PROFILES

The ThermoPlus has six heating profiles, five are fixed and one is adjustable. Profile 'ONE' has been set as the default and is detailed below. During installation a heating profile should have been set to best match your requirements, illustrations of the pre-set profiles are shown below.

PROFILE 1

24 Hour

PROFILE ONE - DEFAULT	START	STATUS
EVERY DAY	06:00	WARM
	22:00	COOL

TIME PROFILE

Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 00

Profile

TEMPERATURE PROFILE
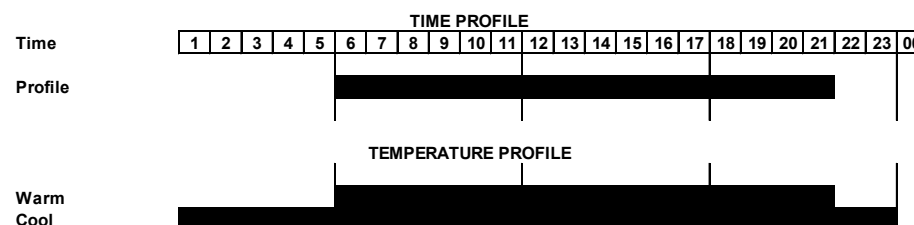
Warm
Cool

PROFILE 2

24 Hour

PROFILE TWO	START	STATUS
EVERY DAY	06:00	WARM
	08:00	COOL
	17:00	WARM
	22:30	COOL

TIME PROFILE

Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 00

Profile

TEMPERATURE PROFILE
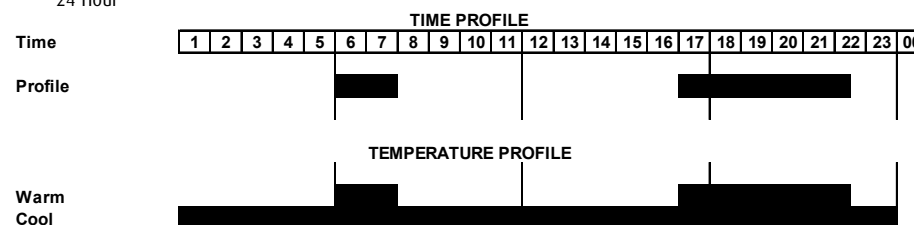
Warm
Cool

PROFILE 3

24 Hour

PROFILE THREE	START	STATUS
EVERY DAY	06:00	WARM
	08:00	COOL
	11:30	WARM
	13:30	COOL
	17:00	WARM
	22:30	COOL

TIME PROFILE

Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 00

Profile

TEMPERATURE PROFILE
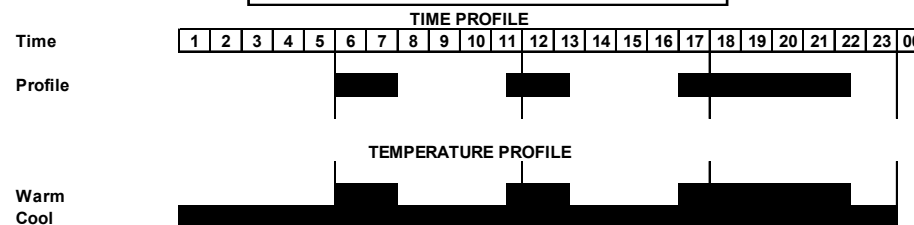
Warm
Cool

PROFILE 4 — 5/2 DAY

PROFILE FOUR	START	STATUS		START	STATUS
MON - FRI	06:00	WARM	SAT/SUN	07:00	WARM
	08:00	COOL		22:00	COOL
	11:30	**WARM**			
	13:30	COOL			
	17:00	**WARM**			
	22:30	COOL			

TIME PROFILE

Time Profile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00

MON-FRI

SAT / SUN

TEMPERATURE PROFILE

MON-FRI **Warm Cool**

SAT / SUN **Warm Cool**
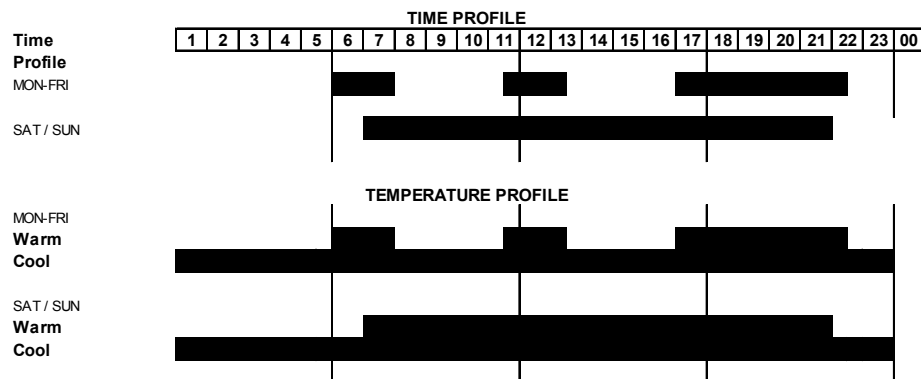
PROFILE 5 — 5/2 DAY

PROFILE FIVE	START	STATUS		START	STATUS
MON - FRI	06:00	WARM	SAT/SUN	07:00	WARM
	08:00	COOL		22:00	COOL
	17:00	**WARM**			
	22:30	COOL			

TIME PROFILE

Time Profile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00

MON-FRI

SAT / SUN

TEMPERATURE PROFILE

MON-FRI **Warm Cool**

SAT / SUN **Warm Cool**
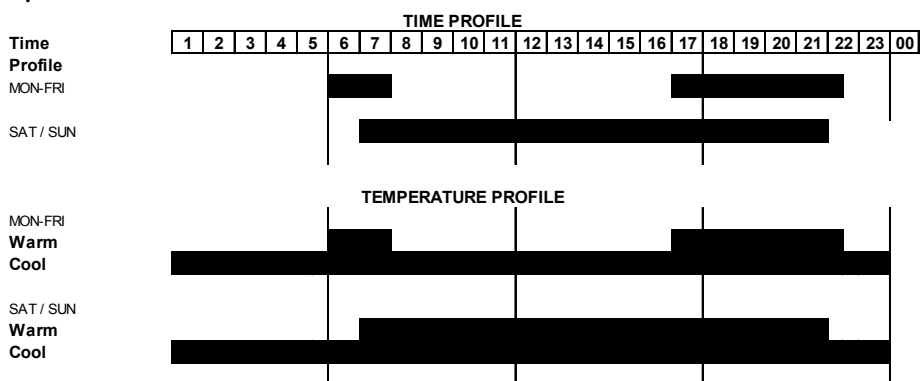
Profiles one to five have fixed periods, no alteration to the Warm/Cool times can be made, if it is necessary to make any alterations then profile six must be used. Profile six will allow you to set up a profile to your exact requirements. Please refer to the flowchart opposite

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PROFILE SIX
USER DEFINABLE - 7 DAY PROGRAMMING

Profile six will allow you to set up a profile to your exact requirements. By using the flow chart below you can adjust the Warm/Cool timing periods on each day of the week.

PROFILE 6 — 7 DAY

Flowchart:

OPEN COVER
↓
ENTER PROGRAMMING MODE (DETAILED ON PAGE 5)
↓
PRESS PROG
↓
PRESS SET
↓
SELECT PROFILE SIX BY USING THE UP/DOWN BUTTONS
↓
PRESS SET
↓
ADJUST THE WARM START TIME BY USING THE UP/DOWN BUTTONS AND CONFIRMING WITH THE SET BUTTON
↓
ADJUST THE COOL START TIME BY USING THE UP/DOWN BUTTONS AND CONFIRMING WITH THE SET BUTTON
↓
REPEAT UNTIL EACH REQUIRED PERIOD IS SET
↓
ONCE A DAY HAS BEEN COMPLETED PRESS EITHER;
SET - CONTINUE TO NEXT DAY
COPY - APPLY ALTERED SETTING TO THE NEXT DAY OR EXIT.
→ PRESS SET / PRESS COPY
↓
PRESS EXIT
↓
EXIT PROGRAMMING MODE (DETAILED ON PAGE 5)

COPY FEATURE
The copy feature can be used to apply changes made from one days programming to the next. This is achieved by pressing the down arrow button when 'SET' is displayed on the screen.
'SET' is displayed after the last cool period is confirmed on each day.